

**ASSESSMENT OF ENVIRONMENTAL HEALTH IN SELECTED LOCATIONS OF SOUTHERN COAST OF SRI LANKA USING AZTI'S MARINE BIOTIC INDEX BASED ON MARINE POLYCHAETES AS INDICATORS**

**M.D.G.V. Priyankara<sup>1</sup>, H.M.B.N. Wickramasooriya<sup>2</sup>, Martin Skarsvåg<sup>3</sup>  
and R.G.D.R. Jayawickrama<sup>1\*</sup>**

<sup>1</sup>*Department of Animal Science, Uva Wellassa University of Sri Lanka, Badulla, Sri Lanka*

<sup>2</sup>*Department of Applied Earth Sciences, Uva Wellassa University of Sri Lanka, Badulla, Sri Lanka*

<sup>3</sup>*Department of Environment, STIM AS, Norway*

\**ranga@uwu.ac.lk*

The southern coast of Sri Lanka, renowned for its marine biodiversity and economic importance, faces escalating anthropogenic pressures threatening its ecological integrity. This study assessed environmental health in three selected sites: Galle harbour, Unawatuna beach, and Gin river mouth, utilizing AZTI's Marine Biotic Index (AMBI) based on marine polychaetes as bioindicators. Benthic sediment samples were collected along line transects extending 100 m offshore at each site. Polychaete specimens were identified to the species level. Sediment grain size analysis was conducted using the wet sieving method. Our findings indicated that Galle harbour, characterised by a comparatively muddy bottom, experiences moderate disturbance (mean AMBI = 3.958). It is dominated by Ecological Group (EG) II species (86.1%), indifferent to disturbance, with a notable presence (11.1%) of second-order opportunistic species from EG IV. This moderate disturbance likely results from pollution sources, including harbour activities, oil spills, and untreated sewage. Unawatuna beach showed slight disturbance (mean AMBI = 1.566), dominated by species indifferent to disturbance (EG II = 65.0%). This condition is likely due to tourism-related activities and pollution from hotels, including sewage and wastewater discharge. The Gin river mouth is known for potential pollution from industrial waste, agricultural and urban runoff, and siltation from soil erosion. Although we expected significant disturbance at this location, our AMBI results classified it as slightly disturbed (mean AMBI = 3.000). This may be attributed to our sampling coinciding with the heavy rainy season, which likely altered the benthic community dynamics due to freshwater influx. Hence, this finding highlights the importance of continuous temporal observations in such areas to grasp species abundance dynamics. Overall, our study underscores the valuable role of polychaetes as indicators in coastal environmental monitoring and their applications with marine biotic indices.

**Keywords:** AZTI's Marine Biotic Index (AMBI), Bioindicators, Environmental health, Marine polychaetes, Southern coast of Sri Lanka